## PATENT COOPERATION TREATY

# **PCT**

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 8117487/PCT	FOR FURTHER AC	TION	See Form PCT/IPEA/416		
International application No. PCT/SG2004/000205	International filing dat 9 July 2004	te (day/month/year)	Priority date (day/month/year) 9 July 2003		
International Patent Classification (IPC) or national classification and IPC					
Int. Cl. 7 C12N 1/16, 1/19, C12Q 1/00					
Applicant	:				
NATIONAL UNIVERSITY OF	SINGAPORE et al				
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.					
2. This REPORT consists of a total of 3	sheets, including this c	over sheet.			
3. This report is also accompanied by AN	•	·	·		
a. (sent to the applicant and to th	e International Bureau)	a total of sheets, as	follows:		
sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).					
sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.					
b. (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).					
4. This report contains indications relating	g to the following items	:			
Box No. I Basis of the repo	is of the report				
Box No. II Priority	riority				
Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability					
Box No. IV Lack of unity of	Lack of unity of invention				
	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
Box No. VI' Certain documer	Certain documents cited				
Box No. VII Certain defects in	Certain defects in the international application				
Box No. VIII Certain observations on the international application					
Date of submission of the demand		Date of completion of the report			
7 February 2005		30 May 2005			
Name and mailing address of the IPEA/AU		Authorized Officer			
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-niail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929		ALISTAIR BESTOW Telephone No. (02) 6283 2450			

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SG2004/000205

otherwise indicated under this item.  This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:  international search (under Rules 12.3 and 23.1 (b))  publication of the international application (under Rule 12.4)  international preliminary examination (under Rules 55.2 and/or 55.3)  With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the received (office in response to an invitation under Article 14 are referred to in this report as "originally filed furnished the description:  pages as originally filed/furnished pages" received by this Authority on with the letter of pages as originally filed/furnished pages as originally filed/furnished pages as originally filed/furnished pages as originally filed/furnished pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):  any table(s) related to the sequence listing (specify):  any table(s) related to the sequence listing (specify):	В	ox No. I Basis of the report					
which is the language of a translation furnished for the purposes of:  international search (under Rules 12.3 and 23.1 (b))  publication of the international application (under Rule 12.4)  international preliminary examination (under Rules 55.2 and/or 55.3)  2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as 'originally filed' and are not annexed to this report):	1.						
publication of the international application (under Rule 12.4)  international preliminary examination (under Rules 55.2 and/or 55.3)  2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as *originally filed* and are not annexed to this report):							
international preliminary examination (under Rules 55.2 and/or 55.3)  2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):    X							
2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report);    X		publication of the international application (under Rule 12.4)					
furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report);    the international application as originally filed/furnished	}	international preliminary examination (under Rules 55.2 and/or 55.3)					
the description:  pages as originally filed/furnished received by this Authority on with the letter of with the letter of with the letter of the claims:  pages as originally filed/furnished as amended (together with any statement) under Article 19 received by this Authority on with the letter of the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of with the letter of pages* received by this Authority on with the letter of with the letter of pages* received by this Authority on with the letter of with the letter of with the letter of pages* received by this Authority on with the letter of with the le	2.	furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally					
pages as originally filed/furnished received by this Authority on with the letter of received by this Authority on with the letter of received by this Authority on with the letter of the claims:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages as originally filed/furnished pages* received by this Authority on with the letter of the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify): any table(s) related to the sequence listing (specify):		X the international application as originally filed/furnished					
pages* pages received by this Authority on with the letter of pages* pages as originally filed/furnished as amended (together with any statement) under Article 19 received by this Authority on with the letter of with the letter of with the letter of with the letter of pages* pages as originally filed/furnished received by this Authority on with the letter of with the letter of with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):  the description, pages the claims, Nos. the description, pages the claims, Nos. the drawings, sheets/figs any table(s) related to the sequence listing (specify):		the description:					
pages received by this Authority on with the letter of  the claims:  pages as originally filed/furnished pages* as amended (together with any statement) under Article 19 received by this Authority on with the letter of  the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos.  the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  the description, pages the claims, Nos.  the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify): any table(s) related to the sequence listing (specify):	( )						
pages as originally filed/furnished pages* as armended (together with any statement) under Article 19 pages* received by this Authority on with the letter of  the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of  the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of  a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos.  the drawings, sheets/figs the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):							
pages as originally filed/furnished pages* as armended (together with any statement) under Article 19 pages* received by this Authority on with the letter of pages received by this Authority on with the letter of pages as originally filed/furnished pages received by this Authority on with the letter of pages received by this Authority on with the letter of pages received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of: the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):		· · · · · · · · · · · · · · · · · · ·					
pages* as amonded (together with any statement) under Article 19 pages* received by this Authority on with the letter of  the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of  pages* received by this Authority on with the letter of  a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify): any table(s) related to the sequence listing (specify):							
pages* received by this Authority on with the letter of the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):							
the drawings:  pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos.  the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):							
pages as originally filed/furnished pages* received by this Authority on with the letter of pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of: the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):	1						
pages* received by this Authority on with the letter of a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):	1						
pages* received by this Authority on with the letter of  a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages  the claims, Nos.  the drawings, sheets/figs  the sequence listing (specify):  any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages  the claims, Nos.  the drawings, sheets/figs  the sequence listing (specify):  any table(s) related to the sequence listing (specify):	ł						
a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.  The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the drawings, sheets/figs any table(s) related to the sequence listing (specify):							
The amendments have resulted in the cancellation of:  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):							
the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):	3.						
the claims, Nos.  the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):							
the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):	<b>'</b> )						
the sequence listing (specify):  any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):							
any table(s) related to the sequence listing (specify):  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):							
This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):							
the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (specify):  any table(s) related to the sequence listing (specify):							
the claims, Nos.  the drawings, sheets/figs  the sequence listing (specify):  any table(s) related to the sequence listing (specify):	4.	made, since they have been considered to go beyond the disclosure as filed, as indicated in the Simplemental Box (Rule					
the drawings, sheets/figs the sequence listing (specify): any table(s) related to the sequence listing (specify):		the description, pages					
the sequence listing (specify):  any table(s) related to the sequence listing (specify):		the claims, Nos.					
any table(s) related to the sequence listing (specify):		the drawings, sheets/figs					
any table(s) related to the sequence listing (specify):							
* Witness of any live and any live of the							
* Without and the second H. Colon I.							
If item 4 applies, some or all of those sheets may be marked "superseded."	*						

#### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SG2004/000205

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

		····	
1.	Statement		
	Novelty (N)	Claims 1-48	YES
		Claims	NO
	Inventive step (IS)	Claims 1 - 48	YES
		Claims	NO
-	Industrial applicability (IA)	Claims 1 - 48	YES
	•	Claims	NO

2. Citations and explanations (Rule 70.7)

Citations

D1 DAHLQVIST, A., et. al. Proceedings of the National Academy of Science 97(12):6487-92

D2 WO, A1, 2000/060095

Neither D1 or D2 disclose or suggest the claimed invention, and therefore the claimed invention appears to be both novel and inventive.